

This application claims the benefit of U.S. Provisional Application No. 60/270,649 filed February 26, 2001, which is incorporated herein by reference.

IN THE CLAIMS:

Please cancel Claims 1-3, 6, and 9 without prejudice.

1       4. (Amended) Fiberoptic sensing apparatus,  
2 comprising:

3       a fiberoptic coupler in which a plurality of optical  
4       fibers are joined through a fused coupling region, said  
5       optical fibers including at least one input optical fiber  
6       and a plurality of output optical fibers, said fiberoptic  
7       coupler distributing light incident to said input optical  
8       fiber among said plurality of output optical fibers;

9       a support member;  
10       said coupler being mounted to said support member and  
11       configured such that at least a portion of said coupling  
12       region can be deflected to change the light distribution  
13       among said output fibers with said coupling region being  
14       under substantially no tension;

15       a fluid column cooperative with a deflection member  
16       disposed to deflect said portion of said coupling region;

17        a transducer coupled to said fluid column, said  
18        transducer converting pressure fluctuations from an  
19        external source into pressure changes in said fluid column,  
20        causing said deflection member to deflect said portion of  
21        said coupling regions, said transducer being disposed at a  
22        first end of said fluid column, and said deflection member  
23        being disposed at a second end of said fluid column; and  
24        a pressurizing device which sets an initial fluid  
25        pressure of said fluid column.

1        7. (Amended) The apparatus of Claim 4, wherein said  
2        fluid column is a gaseous column.

1        8. (Amended) The apparatus of Claim 4, wherein at  
2        least part of said fluid column is contained in a hose.

1        10. (Amended) The apparatus of Claim 4, further  
2        comprising:  
3        a device optically coupled to said output optical  
4        fibers to detect the change of light distribution.

1        12. (Amended) An apparatus for monitoring acoustic  
2    activity or motion of an object, comprising:  
3        a support member having a surface configured to  
4    support the object;  
5        a transducer associated with said support member and  
6    capable of transmitting pressure fluctuations due to  
7    acoustic activity or motion of the supported object;  
8        a fiberoptic sensor having a fused-fiber coupling  
9    region supported such that at least a portion of said  
10   coupling region can be deflected to change an output of  
11   said sensor with said coupling region being under  
12   substantially no tension; and  
13        a fluid column coupled to said transducer and  
14   cooperative with a deflection member to transmit pressure  
15   fluctuations from said transducer to said deflection  
16   member, said deflection member deflecting said portion of  
17   said coupling region.

1        22. (Amended) The apparatus of Claim 21, further  
2    comprising a display connected to an output of said device.  
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Please add the following new claims:

1        23. (New) The apparatus of Claim 4, wherein said  
2 portion of said coupling region is substantially U-shaped.

1        24. (New) The apparatus of Claim 23, wherein said U-  
2 shaped portion lies substantially in a plane and is  
3 disposed to be deflected along a direction perpendicular to  
4 said plane.

1        25. (New) The apparatus of Claim 12, wherein said  
2 portion of said coupling region is substantially U-shaped.

1        26. (New) The apparatus of Claim 25, wherein said U-  
2 shaped portion lies substantially in a plane and is  
3 disposed to be deflected along a direction perpendicular to  
4 said plane.

REMARKS

Claims 1-3, 6, and 9 have been cancelled in order to  
be presented in companion Application No. 10/247,738. The  
remaining claims have been amended accordingly, and new  
Claims 23-26 have been added. As a result, Claims 4-5, 7-  
8, and 10-26 are pending.

WHAT IS CLAIMED IS:

1       1. Fiberoptic sensing apparatus, comprising:  
2           a fiberoptic coupler in which a plurality of optical  
3       fibers are joined through a fused coupling region, said  
4       optical fibers including at least one input optical fiber and  
5       a plurality of output optical fibers, said fiberoptic coupler  
6       distributing light incident to said input optical fiber among  
7       said plurality of output optical fibers;  
8           a support member;  
9           said coupler being mounted to said support member and  
10       configured such that at least a portion of said coupling  
11       region can be deflected to change the light distribution among  
12       said output fibers without putting said coupling region under  
13       tension; and  
14           a fluid column cooperative with a deflection member  
15       disposed to deflect said portion of said coupling region.

1       2. The apparatus of Claim 1, further comprising:  
2           a transducer coupled to said fluid column, said  
3       transducer converting pressure fluctuations from an external

4 source into pressure changes in said fluid column, causing  
5 said deflection member to deflect said portion of said  
6 coupling region.

1 3. The apparatus of Claim 2, wherein said transducer is  
2 disposed at a first end of said fluid column, and said  
3 deflection member is disposed at a second end of said fluid  
4 column.

1 4. The apparatus of Claim 3, further comprising:  
2 a pressurizing device which sets an initial fluid  
3 pressure of said fluid column.

1 5. The apparatus of Claim 4, wherein said pressurizing  
2 device is connected to said fluid column at a position between  
3 said first and second ends.

1 6. The apparatus of Claim 1, wherein said fluid column  
2 is a liquid column.

1        7. The apparatus of Claim 1, wherein said fluid column  
2 is a gaseous column.

1        8. The apparatus of Claim 1, wherein at least part of  
2 said fluid column is contained in a hose.

1        9. The apparatus of Claim 2, wherein at least part of  
2 said fluid column is contained in a hose.

1        10. The apparatus of Claim 1, further comprising:  
2        a device optically coupled to said output optical fibers  
3        to detect the change of light distribution.

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1        11. The apparatus of Claim 10, further comprising:  
2        a display connected to an output of said device.

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1        12. An apparatus for monitoring acoustic activity or  
2 motion of an object, comprising:  
3        a support member having a surface configured to support  
4        the object;

5        a transducer associated with said support member and  
6        capable of transmitting pressure fluctuations due to acoustic  
7        activity or motion of the supported object;  
8        a fiberoptic sensor having a fused-fiber coupling region  
9        supported such that at least a portion of said coupling region  
10      can be deflected to change an output of said sensor without  
11      said coupling region being put under tension; and  
12      a fluid column coupled to said transducer and cooperative  
13      with a deflection member to transmit pressure fluctuations  
14      from said transducer to said deflection member, said  
15      deflection member deflecting said portion of said coupling  
16      region.

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1        13. The apparatus of Claim 12, wherein said transducer  
2        is disposed at a first end of said fluid column, and said  
3        deflection member is disposed at a second end of said fluid  
4        column.

1        14. The apparatus of Claim 12, wherein at least a  
2        portion of said fluid column is contained in a hose.

1       15. The apparatus of Claim 12, wherein said transducer  
2 includes a bladder having an interior space in communication  
3 with said fluid column.

1       16. The apparatus of Claim 15, wherein said bladder has  
2 a resiliently deformable portion which transmits external  
3 pressure fluctuations to said interior space.

1       17. The apparatus of Claim 12, wherein said support  
2 member has a recessed or cut-out portion in which at least a  
3 portion of said transducer is received.

1       18. The apparatus of Claim 17, wherein said transducer  
2 includes a bladder, a portion of which protrudes from said  
3 surface of said support member to engage the object to be  
4 monitored.

1       19. The apparatus of Claim 18, wherein at least a  
2 portion of said fluid column is contained in a hose.

1       20. The apparatus of Claim 19, wherein said support  
2       member has a recessed or cut-out portion in which at least a  
3       portion of said hose is received.

1       21. The apparatus of Claim 12, further comprising:  
2       a device optically coupled to said fiberoptic sensor to  
3       detect output changes of said sensor due to the deflection of  
4       said portion of said coupling region.

1       22. The apparatus of Claim 21, further comprising a  
2       display connected to an output of said device

add 23-26 7